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## Chairman Boland Has Doubts

### Budget Boost for R&D Draws Fire in Congress

Presidential Science Adviser George A. Keyworth II ran into a rare barrage of skepticism February 26 when he testified before the House Appropriations Subcommittee that handles the budgets for the National Science Foundation, NASA, and his own office.

With Capitol Hill generally gaga these days over R&D spending, Keyworth usually enjoys sage status amid the legislative clamor for a slice of the research bundle. But he encountered mainly probing and persistent questioning in his appearance before Rep. Edward P. Boland (D-Mass.), Chairman of the HUD-Independent Offices Appropriations Subcommittee. Boland, a 32-year veteran of the House, has

solid credentials as a supporter of R&D. But he made it plain that he has doubts about the favored position that R&D occupies in the Administration's otherwise skimpy budget for civilian programs next year. And, with good temper but open disbelief, he rejected Keyworth's shopworn alarms about other nations catching up to the US in R&D performance.

"It's the same argument every year about losing the lead," Boland said, adding that he's heard it repeated every year he's been in Congress.

Such doubting sentiments ordinarily wouldn't matter in the present mood of warm favor for R&D spending. But Boland, powerful within his own R&D

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## NSF Board Cites 15 Schools For Pork-Barrel R&D Raids

*In what it clearly intends as a dishonor roll of academic pork-barrelers, the normally timid National Science Board—NSF's policymaking body—last week publicly issued a list of 15 universities that it described as "circumventing merit review" to obtain a total of "over \$100 million for construction of facilities by appealing directly to Congress." The sums listed are only through the current fiscal year; the final tally is sure to be far higher. The institutions and assorted details of their coups, plus a few near misses, all of which occurred over the past 2 years, are as follows:*

•  
**Northwestern University**—\$16 million for a Basic Industry Research Institute (ultimate price tag \$26 million), charged to the DoE, funded through the Department of Interior appropriations bill.

**Boston University**—\$19 million for an Engineering Building, financed through the Economic Development Administration after a \$20-million item for the project was deleted from the Senate version of the FY 1984 Labor-HHS-Education appropriations bill.

**West Virginia University**—\$4.5 million for a Cancer Research Center, for which NIH will pay the bill.

**University of North Carolina**—\$800,000 for expansion of an ongoing Undersea Research Program, through a Senate floor amendment to the 1984 supplemental appropriation for the National Oceanic and Atmospheric Administration.

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## In Brief

Something new to worry about in international R&D competition has been raised by White House Science Adviser George A. Keyworth II. Testifying to the House Appropriations Committee this week, Keyworth noted that since biotechnology costs less than physics, "It wouldn't surprise me to find newly industrializing nations, looking for opportunities in science and technology, to develop strong capabilities to challenge us in biotechnology." Keyworth added that "we seem to be giving far too little attention to protecting and capitalizing on our longterm investment in life sciences by broadening the disciplinary base."

A report calling for restructuring the Institute of Medicine (SGR Vol. XV, No. 2) has been temporarily set aside by IoM's parent organization, the National Academy of Sciences, while a new search is conducted to replace IoM President Frederick C. Robbins, who's retiring October 1. Paul Marks, President of Memorial Sloan-Kettering, has been appointed head of the search committee, succeeding Theodore Cooper, an Upjohn Vice President, who continues as a member.

Where stands the expected nomination of John H. Moore, a Hoover Institution economist, to the long-vacant post of Deputy Director of NSF (SGR Vol. XV, No. 2)? NSF Director Erich Bloch shrugs and says it's in the hands of the White House, which doesn't comment on unannounced presidential appointments. Meanwhile, Guy Stever, a long-ago NSF Director, suggested to the House Science and Technology Committee last week that life would be simpler for NSF if it reverted to the old system of the presidentially appointed Director appointing his own lieutenants, rather than having five of them come through the tortuous White House mill.

## ... DoE, NSF, and Even Head Start Got Raided

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**University of Connecticut**—Pediatric Research and Training Center, included as part of a \$1.5 million Senate amendment to the 1983 supplemental appropriation for the National Institute for Handicapped Research. That same item provided the **University of Hawaii** with a Rehabilitation Research and Training Center.

**University of Oregon**—\$2.3 million for a Science Facility for advanced science and technology programs, financed with DoE funds contained in the FY 1985 Energy and Water Appropriations Act.

**University of Kansas**—\$9 million for a Human Development Center Facility, the first notice of which came in the Senate Appropriations report for the FY 1985 Labor-HHS-Education bill.

**Catholic University**—\$13.9 million for a Vitreous State Laboratory, funds for which were contained in a last-minute floor amendment to a pair of 1984 energy authorization bills. The NSB report states that the "money was taken from the Administration's \$26-million request for the National Center for Advanced Materials at Lawrence Berkeley Laboratory, but the NSB fails to note that the ill-fated NCAM arrived in Congress as a pet project of White House Science Adviser George A. Keyworth, without peer review (SGR Vol. XIII, No. 10).

**Columbia University**—\$8 million for a Chemical Research Laboratory, which moved in tandem with the Catholic U. raid on energy authorizations. NSB observes that the project's first \$5 million "was taken from the budgets of other university instrumentation projects."

**University of New Hampshire**—\$15 million for a Space and Marine Science Building, funded through the Department of Education, which NSB notes was directed in a Senate floor amendment to the 1983 supplemental appropriations bill to waive the statutory requirement of peer review "because no such panel currently exists and its establishment would unduly delay the disbursement of funds."

**Florida State University**—\$7 million for a Supercomputer Center, financed from the Department of Energy budget. Not mentioned by NSB was the Jesse James of this case, Rep. Don Fuqua (D-Fla.), Chairman of the House Science and Technology Committee, which presides over NSF legislative affairs (SGR Vol. XV, No. 3).

The NSB study noted that several other short-circuitings of peer review have had setbacks, but they still may make it. An \$18.2 million item for an Engineering Laboratory at the **University of New Mexico** was accepted as a floor amendment to the Senate's FY 1984 Labor-HHS-Education appropriations bill. House-Senate conferees deleted the item, but went on record that it should be accorded a "high priority" if Congress approves a construction grants program.

### Board Fears More to Come

The National Science Board's list of universities "circumventing merit review" is included in a report that calls for holding a national conference on Academic Research Facilities "to address [pork-barrel] issues and to launch actions to solve them."

The report, produced by a committee chaired by NSB Vice Chairman Charles E. Hess, Dean of Agriculture and Environmental Sciences, University of California, Davis, was endorsed by the Board February 22, with a recommendation that the conference be held in June.

The Committee stated that "In some cases, universities have hired professional lobbyists, and many have exerted pressure on their [Congressional] representatives." These cases, it added, "establish a dangerous precedent" that could inspire other universities "to follow the example of the major universities that have successfully secured funding for facilities by appealing directly to Congress."

**Indiana University's** quest for funds for a Center for Educational Excellence initially focused on NSF, from which \$10.3 million was sought with the blessings of Senator Jake Garn (R-Utah), who chairs the NSF appropriations subcommittee. NSF wiggled out on the grounds that its Science and Engineering Education Directorate doesn't fund construction. Whereupon, a \$6-million authorization for the building was tacked onto the Head Start program. However, since no money was explicitly appropriated, the project remains stalled.

A similar problem is holding up the **University of Utah's** Research Center of the Health Effects of Nuclear Energy, for which \$4 million was also written into the Head Start authorization.

In addition to the episodes reported above, the NSB named 7 institutions which "have sought Congressional approval for various facilities [which] are not considered to be crucial for the conduct of basic scientific and engineering research." It offered no details, however, apart from the following barebones list:

Oregon Medical School Library and Information Center

Boston College Central Library

University of Pennsylvania Dental School

Georgetown University Fuel Cell Demonstration Program

University of Hartford Library

University of Georgia Institute of Government

University of Massachusetts McCormack Institute.

## ... Freeze for All Would Be Fair, Boland Says

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jurisdiction, is also regarded by many of his Democratic colleagues as a wise oldtimer on the mysteries of federal money for science. His often-scoffing performance at the hearing, which was poorly attended by fellow members and Washington's traveling herd of science-policy watchers, could be a sign that R&D's astonishing political rise may have peaked.

Looking a bit startled as he heard the Chairman across a table in an ornate room in the Capitol Building, Keyworth launched into a number about European achievements in high-energy physics, particularly work at CERN, which he described as perhaps the most important scientific achievement of the past decade.

Boland dryly noted that the US has "been in the accelerator business for a long time," and wondered why American physicists had fallen behind. Keyworth said the failing came from misdirected resources—money had been allocated for the since-canceled Isabelle project at the Brookhaven National Laboratory, to the detriment, he suggested, of CERN's American competitor, the Fermilab. The Chairman grimaced in a way that suggested he knew a snow job when he saw one.

Boland then asked Keyworth to describe his White House role, which Keyworth proceeded to do with a grand tale of unalloyed loyalty to the President on a vast array of complex issues.

"How do you get his ear? His good ear, I mean?" Boland asked.

"That's not difficult," Keyworth answered. "For example, I've attempted for the past two years to respond aggressively to his requests for support for the Strategic Defense Initiative." He added, "I'm always an advocate of the President's policies . . . I think I have an excellent working relationship with the President."

"Are you ever the devil's advocate with the President?" Boland asked.

Keyworth responded that there might be disagreements inside, "but I am always an advocate outside." And, as he has done in the past, he described himself as "a guest in the President's home. All of his staff is."

Keyworth then related that his enthusiasm for Star

Wars had grated some White House staff members to the point where his tenure was possibly threatened (SGR Vol. XV, No. 1). But, in December, following published rumors of a coming ouster, he said, the President "called me to ask me to stay."

Boland then turned to R&D's treatment in the President's FY 1986 budget proposals, noting that NSF and NASA were up, if only modestly, while funds for social programs had been drastically reduced or eliminated. "This is a very inequitable way," Boland said, noting that "this budget proposes zero for additional subsidized housing"—which also comes under the Chairman's appropriations jurisdiction. "The budget also freezes the number of patients that can be treated in VA hospitals," Boland said. "It actually reduces the number of doctors and nurses and direct patient-care personnel for those patients."

"NASA," Boland continued, "enjoys a 5.5-percent increase, and the Science Foundation a 4.5-percent increase. I'm not sure that everybody would agree that this budget shares the pain equally." To which Boland added, "It would probably be fair if we had a freeze . . . for all agencies."

Keyworth replied that science was favored in the 1986 budget because the Administration considered it essential to "ensure enduring economic growth." He then related that the President's Commission on Industrial Competitiveness had concluded that "technology and talent" were the only "enduring advantages" of the US. Increased investment in those, Keyworth insisted, was justified, even in a difficult budget year.

Boland then queried Keyworth about the declining cargo load for the Space Shuttle, which the Chairman noted had been sold to Congress as a carryall that would be overwhelmed with business. Nevertheless, he said, the Air Force has sharply reduced its longterm Shuttle use in favor of expendable launch vehicles.

Keyworth responded to the effect that the Shuttle was a technological triumph, but that the Air Force couldn't be blamed for shunning reliance on a launch system of just four identical vehicles.

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## Europeans to Take Part in US Space Station

*London.* Western Europe has accepted an invitation to become a junior partner in the permanently manned space station planned by NASA. But the main selling point for what is sure to be a costly participation in the US-dominated venture was that it will serve as a stepping stone to eventual European independence in space. France, the prime mover of Eurospace activities, has suggested that by the year 2000, European space independence may even extend to Europe's own space station.

The twin goals of cooperation and independence were mapped out at the end of January at a 2-day ministerial conference in Rome of the 11 nations of the European Space Agency (ESA). The decision they arrived at, easily the most important in ESA's decade-long history, provides for developing both a more powerful all-European launch vehicle and a manned module tailored to mate with the US space station.

The ESA members decided to continue and in some cases slightly expand ESA's existing programs. At the same time, they agreed to 2 major new projects, both of which will cost about \$2 billion over the next 10 years. One is to produce Ariane 5, a more powerful version of

the current launcher, and the other is to develop a module called Columbus, designed to plug into the US manned space station. The new and expanded projects will raise ESA's budget by about 70 percent over the next five years.

In some ways, however, the meeting raised more questions than it answered about Europe's aims and ESA's role in space. Prominent among them is the uncertain line between government and commercial activities. It can be argued that ESA mainly fills a political rather than a technological role by providing a focal point that strengthens the space bureaucracies of the member countries and makes possible projects that would strain the resources of even the major individual nations. For example, it is unlikely that France would have gone it alone in the development of Ariane.

But there are reasons to doubt that the expertise gained by European industry through ESA contracts is sufficient to compete for orders in the international space marketplace. In satellites, European companies are faring poorly against their American rivals, mainly on price. Perhaps the main reason for the poor show-

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## ... Boland Blasts NSF for Delays in Education Program

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He then turned to the fiscal rigor mortis that has overcome NSF education programs for which the Congress has appropriated large sums in recent years. "Over the past 3 years," Boland said, "this committee has been banging away at the National Science Foundation and the Administration over the issue of trying to get sufficient funds into science education . . . . I thought we had some understanding that we should probably provide something like \$100 million a year to revitalize scientific education.

"But each year we seem to find ourselves caught up in problems. The Foundation appears to be incapable of spending the money, while the Administration wants to cut it. The Administration doesn't seem to have any trouble finding money for the Very Long Baseline Array [radio telescope, which Congress has held hostage to science education programs.] But we can't seem to get a few million dollars to help with science programs for children."

Keyworth responded that the VLBA had emerged from extensive peer review as "the top priority in astronomy." On a scale of 1 to 100 in science quality, Keyworth said, "this one ranks somewhere between 99 and 100." To which Boland interjected, "Oh, no."

"Absolutely," insisted Keyworth. "I cannot think of a scientist in America who is a recognized astronomer who questions the utility and the viability of the VLBA."

Boland, the 30-year veteran of science politics, asked: "Outside of the field of astronomy, do you find any [supporters]?"

Good naturedly referring to the Chairman's familiarity with "parochialism" in science, Keyworth said, "There can be no question that the material scientists couldn't care less if elementary particle physics disappeared." The function of his office and the Congress, he said, was to take a broader view of these things. As for NSF's failure to accelerate the spending of its education money, Keyworth offered an aging explanation: It takes time to build a sound program. Boland looked unconvinced.

It's still far too early in the complex budget cycle of this especially difficult budget year to foresee whether Chairman Boland's skepticism represents a growing sentiment in the House, and whether it will take a toll on the Administration's relatively generous plans for R&D. But amid the cheers for R&D spending, the Chairman's performance could be a portent of shifting sentiments on Capitol Hill.—DSG



## ESA: A Rare Success in European Cooperation

One of the few success stories of inter-European high-tech collaboration, the Paris-based European Space Agency functions more as an orchestrator of the 11 member nations' space organizations than as a research and engineering agency in its own right. ESA's annual budget, now running at \$740 million, comes directly from the member governments, with France and West Germany providing nearly half the total. The next biggest spenders are Britain and Italy. Some distance behind them in financial contributions are the other members, Belgium, Holland, Denmark, Ireland, Spain, Switzerland, and Sweden. In Euro-style, ESA is not an egalitarian organization: Decision-making power and contracts for the work are proportional to a country's financial contributions.

Under this system, France has put up about 70 percent of the \$750 million that has gone into the development of ESA's greatest achievement, the Ariane launcher, which grew out of the R&D originally undertaken for the French longrange missile force. The Ariane rocket has accomplished a series of successful satellite launches, and Arianespace, a Paris-based firm in which the French government is a significant shareholder, is effectively competing with NASA worldwide for launch contracts.

The American space establishment originally scoffed at Ariane as a replay of antiquated launch

technology—but Ariane is now taken quite seriously in the US. Last month, NASA Administrator James Beggs told the House Science and Technology Committee that drooping cargo prospects for NASA's 4 space shuttles were attributable to increased Defense reliance on expendable rockets, plus tough competition from Ariane. The European launcher, he said, has recently been neck and neck with NASA in winning launch contracts.

West Germany has concentrated its space resources on payload developments. Thus, MBB-ERNO, a West German company, led the project to build the \$1-billion Spacelab that was carried aboard the Space Shuttle.

ESA's programs cover a range of other activities, including telecommunications, remote sensing, and space science. The first two pan-European communication satellites are in orbit, operated by Eutelsat, a consortium of national postal and telecommunications organizations. Inmarsat, an international consortium that extends beyond Europe to a total of 40 nations, leases two satellites for maritime communications. Western Europe's first remote-sensing satellite, ERS-1, for ocean meteorology, is scheduled for launch in 1988. And another consortium, Eumetsat, is planning a series of meteorological satellites to go into operation by the end of the decade.

## ... France Pushing for a European Mini Space Shuttle

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ing is that Ford, RCA, and other major American space contractors are buoyed by a sufficient volume of federal government contracts to develop a cost-saving production-line approach to satellite manufacture.

Ariane 5 provides another uncertainty for Europe's future in space. To propel a heavier satellite into space, the vehicle is to be fitted with a new cryogenic engine, the HM-60, already under development in France, with the completion date expected in the early 1990s. But it now seems likely that rocketry advances in Japan, and perhaps even China, will surpass the Ariane 5 before it is ready for use.

Another uncertainty arises from France's strong desire to fit a miniature space shuttle, Hermes, atop the Ariane 5—at an estimated cost of \$1.5 billion. The political advantage would be an independent man-in-space capability for various purposes, including transit to and from the Columbus module attached to the US space station.

The Hermes development, which would start in earnest in 1987 if the other ESA members agree, grows out of France's determination to achieve autonomy in stra-

tegic areas of technology. The additional costs involved in "man-rating" Ariane 5, however, would conflict with the original goal of developing a thrifty launch vehicle to undercut the prices of the goldplated US Shuttle system.

And then there are the unresolved issues of the shape and purpose of the Columbus module. Politically, Columbus has a dual role. It is, first of all, a declaration of serious European intent to attain a manned presence in space. Columbus is to be a series of structures in which people can engage in microgravity research, remote sensing, and other activities. Though the structures have not yet been designed in any great detail, ESA's planners regard them as the possible foundation of Europe's own independent space base. But that's in the far distance.

In the interim, Columbus is to achieve the second political goal, which is collaboration with the US program for a manned space station. Under the scheme sketched out in Rome, Columbus would snap into the core of the US base, rather like a child's construction toy. It would rely on US hardware for important services, such as computing, heat dissipation, waste dispos-

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## Rifkin Q&A II: The "New Eugenics" is Here

*This concludes the interview, which began in the last issue, with Jeremy Rifkin, the litigious bane of biotechnology research and applications.*

**SGR.** What do you mean when you say that "a new eugenics has already been accepted"?

**RIFKIN.** The new eugenics is commercial eugenics. We all want healthier babies, more efficient plants and animals, a better gross national product, a better future for our kids. I don't believe there's an evil party. I think that in genetic engineering, if there's a party to blame, it's merely the consciousness of the human race. We are geared toward predicting, planning, and controlling the forces of nature to better our condition.

Now, separate the intentions of the people doing this. If you take a look at the scientists doing this, their motivations, by and large, are to help humanity. Biologists have always been the liberals, they've been the good guys, in a lot of ways. I think the process, though, is inherently eugenic. If you're just observing the genes, in the Socratic tradition and asking the "why" of it, there's really no problem. If you move from that tradition to the Baconian tradition, and ask the "how" of the genes, you're into eugenics. In every laboratory where they're

engineering bacteria, plants, and animals, they have to make a decision at each stage as to what are good and bad genes. That's the nature of the process, because you're modifying, altering, deleting, mutating, changing the germ line in the somatic cells.

The process of genetic engineering is inherently eugenic, because you are making decisions about good and bad genes at every step of the way. This raises two important issues: One, what's the criteria for good and bad genes, and two, what authority do we establish to oversee what's permissible and what's not? What I'm suggesting is that when you look at the criteria for good and bad genes, we start to realize how culturally conditioned the values are that we want to place in the gene pool.

Secondly, what authority should get ultimate responsibility? Because, if we go in over the next 500 years—we're only the crude beginning—what authority do we establish to provide what's permissible in genetic engineering and what's not? Should there be a Congressional authority to decide what's permissible for plants and animals? Should the NIH, the marketplace, the consumer decide? These are heavy and profound questions

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## Eurospace

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al, and, at least in the early stages, transportation to and from earth. Nonetheless, the Columbus module would tangibly certify a European presence in space.

In terms of technical reality, however, Columbus is little more than a name at this stage. Germany, which is the principal proponent of the project, chose the name on the grounds of historical neatness—1992, the originally suggested, but recently postponed, launch date for the US space station, is the 500th anniversary of Christopher Columbus's great discovery.

Though the schedule has slipped, German space officials remain keen for the project, and are committed to 35 percent of the cost. France, Italy, and Britain will cover most of the balance. All the partners plan to join forces over the next two years to develop a design for the project, which is expected to include space-borne laboratory facilities and, possibly, a free-flying platform that can orbit over the North and South poles for earth observation.

A complicating factor is that, despite the warm US invitation to participate in the space station, Europe justifiably feels uneasy about the Defense Department's efforts to curb the overseas flow of advanced American technology. If, at the insistence of DoD, Europe is cut off from technologies that are militarily sensitive, then

the whole deal may be off. In addition, there is also concern over the sharing of commercial applications that may result from collaboration in space. With the US holding a dominant position in the venture, will Europe be able to reap a reasonable share of such opportunities?

That problem, which is far from settled at this early point, brings up memories of the Spacelab deal, which remains a source of irritation in Europe. Having built the equipment, ESA found itself bound by a contract that required it to turn the Spacelab over to NASA after just one flight, with no specified rights of further use. Over the coming year, officials from ESA and the individual governments of Europe will meet with their US counterparts to try to formulate a legal agreement by the end of 1986.

The Rome meeting produced many high-flying statements on both the future of European-American space cooperation and European space independence. At times, the rhetoric was extravagant, but there should be no doubts about ESA: After a difficult and uncertain start, it is now deeply rooted on the European technological landscape, it performs reasonably well, and it's here to stay as both a congenial partner and serious competitor of NASA.—Peter Marsh.

*(The writer is a technology correspondent of the Financial Times, of London.)*

## ... Self-Policing Untrustworthy in Science, Rifkin Says

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that can't be answered in a fortnight and should be deliberated quite carefully by society in advance of the technology moving on line.

**SGR.** Your concern, then, goes beyond procedural safeguards to the desirability of at all doing it.

**RIFKIN.** Right. To the fundamental logic of the technology. I think it's important to ask what's the inherent logic of this technology, regardless of the intentions of the users.

Another issue that has to be raised is the whole issue of species identity. This is becoming quite an important issue because of our Department of Agriculture case. It's my position that genetic technology is qualitatively different than all other breeding and domesticating technologies in history. With breeding, domestication and hybridization technologies in the past, nature allowed us to cross species boundaries and do some impressive things, but also nature narrowly prescribed what you could get away with.

### *Eliminates Idea of Species*

What this technology allows us to do, in its crude beginnings, is eliminate the idea of a species border as an identifiable boundary in nature. What this technology allows us to do is to begin to reconceptualize life at the code level, and be able to move across boundaries and create new combinations and utilities which don't exist. It's a whole new reconception of life. I don't believe you can do much of this in the next 10 or 20 years. But we are seeing the first precedents, the crude tools that suggest a long-term journey where in hundreds and hundreds of years from now we redefine life as merely the sum of the genetic programs that make it up, rather than life as separate, identifiable creatures with an essential nature to them.

Maybe we want to reconceptualize life that way. But at least we better take a look at what the philosophical implications of this new technology might be 300 years from now, before we start embarking on it. These questions weren't raised until I raised that USDA litigation.

**SGR.** Would you even put the therapeutic potential on hold?

**RIFKIN.** I've made no statements on somatic therapy. That's all I'm going to say. I don't want to say any more than that.

**SGR.** Medical researchers are saying that all sorts of wonderful things are about to come from these techniques.

**RIFKIN.** I've brought no litigation on somatic therapy. The only question I've raised on somatic therapy is the possible link between that and germline influence. I've been raising that for years. That's the only thing

that concerns me now, the possible impact of somatic on germline. But we have made no public statements on somatic therapy.

**SGR.** Do you have any notable allies in this campaign?

**RIFKIN.** We've brought litigation with the Humane Society of the United States. They represent a wide, mainstream position on the science of animal welfare, animal physiology. We've had environmental organizations join with us. If you're saying, do we have a tremendous support out there in the scientific community, I would say that the molecular biologists, by and large, don't want to hear from what I have to say. In a way, I can't blame them. We expect too much from them.

The physicists didn't do a very good job about self-policing themselves in the early days of nuclear power. And the chemists were not very prophetic in talking about the downside of the chemical revolution. Why do we expect the molecular biologists, who are excited about the great prospects of their discipline, to at the same time wear another hat and be critical of the possible problems? We expect too much of them. We expect them to be the scientists, the conscience, the policymakers, and the policemen."

### *Small but Not Alone*

**SGR.** The impression I get is that you've achieved success far beyond what anyone anticipated but that you remain a small operation and essentially alone.

**RIFKIN.** I'm a pretty small operation, but not alone. A lot of industry people think that if Jeremy Rifkin goes away, the issue goes away. But here is an issue that deals with the transformation of the economy, from the industrial age to the biotechnical age, with the long-term prospect of engineering life itself. They have to be awfully naive to believe that there isn't going to be tremendous political readjustment and turmoil, questioning and concern by whole new constituencies around this issue.

If you're saying, how come it's only me now, it's just me now because I'm there now. But in 5 or 10 years from now, there's going to be a tremendous number of people who, for various reasons, will have problems. The environmental community is starting to get involved and they will be heavily involved on this issue. Animal welfare and rights are already becoming involved. The feminist and right-to-life communities are becoming involved around the question of reproductive technologies. The preventive health and holistic health and medical communities are generally being involved in the whole question of genetic therapy versus preventive. The disarmament community is starting to get involved around the question of biological warfare.

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## Keyworth Says Far Leftists Dominate the News Media

A bounty of embarrassing publicity fell on Presidential Science Adviser George A. Keyworth II last week when the *Washington Post* prominently reported some of his crackpot views about the press.

Keyworth's remarks are contained in the latest issue of *SIPIscope*, newsletter of the Scientists Institute for Public Information, which aims to assist writers covering science and technology. Interviewed last December, Keyworth stated, "We're trying to build up America and the press is trying to tear down America."

The reason, he said, is that "much of the press seems to be drawn from a relatively narrow fringe

element on the far left of our society." And so on.

Keyworth dodged questions about the interview. But, in response to a request for evidence supporting scientist Keyworth's journalistic assessment, his official spokesman said he thought Keyworth may have been referring to "a survey of the reporters who covered McGovern in the 1972 campaign."

The explanation for this is that Keyworth joined the Los Alamos lab at age 29 and remained there for 13 years until coming to Washington in 1981. He is probably the most effective of presidential science advisers, but his political views are essentially vintage Old Nixon.

### Rifkin

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I'd be willing to predict that within 3 years from now there will be tremendous political turmoil in West Germany, England, and Japan. The Third World countries are going to have a tremendous amount to say about germplasm and the movement of germplasm from south to northern countries, and the new imperialism, the attempt to control the seeds and the germplasm for the genetic age by being able to wrest that away from the countries in which it has been for several thousand years.

There's going to be a lot of interest in this over the coming 500 years. How can you have a whole biotechnical revolution with nothing but pollyannish consensus? It's ridiculous.

*SGR. What's next on your agenda?*

RIFKIN. We're going to take a very long look at the White House's proposed framework for regulation of biotechnology. We're going to be very concerned about Monsanto as the first corporation trying to get approval from EPA on release [of genetically altered organisms]. We're going to be very interested in how the human-gene therapy moves, just in terms of the overall guidelines. My interest is germline. They're not addressing

that primarily, only secondarily.

A lot of people think we're like a public-interest group that deals with each little issue as it comes about. What we want to do is raise this as a broad international educational issue.

*SGR. Do you expect to raise more resources for your campaign?*

RIFKIN. I've been doing this for a long time. I think there's a real limit to how much resources I can comfortably raise and maintain my other activities. What we're doing is playing a prophetic role, and we're on the outer edge. In doing that, you don't garner a lot of money from the Ford Foundation or from Carnegie. No. I'm not going to get it, so why try? Size and resources don't have a correlation to getting the issues out.

*SGR. Is there any member of Congress whom you regard as an ally?*

RIFKIN. Since I spend zero time lobbying up there, I really don't know anyone up on the Hill. They never meet with me, and I never meet with them. There are a few Congress people I've gotten to know. But I have not spent much time on Capitol Hill. I've not taken that route. Congress is likely to respond and react after an issue is made part of the public agenda. It's hard to get them to play a prophetic role. We've raised issues, and then Congress has held hearings.

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